SEQUENCE LISTING

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<120> CRYSTAL STRUCTURES OF P-SELECTIN, P- AND E-SELECTIN COMPLEXES, AND USES THEREOF

<130> 16163-004001

<140> US 09/859,722
<141> 2001-05-17

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<151> 2000-05-19

<160> 10

<170> FastSEQ for Windows Version 4.0

<210> 1
<211> 830
<212> PRT
<213> Homo sapiens

<400> 1

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 1               5                  10                  15
Val Phe Gly Ile Ser Gln Leu Leu Cys Phe Ser Ala Leu Ile Ser Glu
            20                  25                  30
Leu Thr Asn Gln Lys Glu Val Ala Ala Trp Thr Tyr His Tyr Ser Thr
        35                  40                  45
Lys Ala Tyr Ser Trp Asn Ile Ser Arg Lys Tyr Cys Gln Asn Arg Tyr
    50                  55                  60
Thr Asp Leu Val Ala Ile Gln Asn Lys Asn Glu Ile Asp Tyr Leu Asn
65                  70                  75                  80
Lys Val Leu Pro Tyr Tyr Ser Ser Tyr Tyr Trp Ile Gly Ile Arg Lys
                85                  90                  95
Asn Asn Lys Thr Trp Thr Trp Val Gly Thr Lys Lys Ala Leu Thr Asn
            100                 105                 110
Glu Ala Glu Asn Trp Ala Asp Asn Glu Pro Asn Asn Lys Arg Asn Asn
        115                 120                 125
Glu Asp Cys Val Glu Ile Tyr Ile Lys Ser Pro Ser Ala Pro Gly Lys
    130                 135                 140
Trp Asn Asp Glu His Cys Leu Lys Lys Lys His Ala Leu Cys Tyr Thr
145                 150                 155                 160
Ala Ser Cys Gln Asp Met Ser Cys Ser Lys Gln Gly Glu Cys Leu Glu
                165                 170                 175
Thr Ile Gly Asn Tyr Thr Cys Ser Cys Tyr Pro Gly Phe Tyr Gly Pro
            180                 185                 190
Glu Cys Glu Tyr Val Arg Glu Cys Gly Glu Leu Glu Leu Pro Gln His
        195                 200                 205
Val Leu Met Asn Cys Ser His Pro Leu Gly Asn Phe Ser Phe Asn Ser
```

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    210                 215                 220
Gln Cys Ser Phe His Cys Thr Asp Gly Tyr Gln Val Asn Gly Pro Ser
225                 230                 235                 240
Lys Leu Glu Cys Leu Ala Ser Gly Ile Trp Thr Asn Lys Pro Pro Gln
                245                 250                 255
Cys Leu Ala Ala Gln Cys Pro Pro Leu Lys Ile Pro Glu Arg Gly Asn
            260                 265                 270
Met Ile Cys Leu His Ser Ala Lys Ala Phe Gln His Gln Ser Ser Cys
        275                 280                 285
Ser Phe Ser Cys Glu Glu Gly Phe Ala Leu Val Gly Pro Glu Val Val
    290                 295                 300
Gln Cys Thr Ala Ser Gly Val Trp Thr Ala Pro Ala Pro Val Cys Lys
305                 310                 315                 320
Ala Val Gln Cys Gln His Leu Glu Ala Pro Ser Glu Gly Thr Met Asp
                325                 330                 335
Cys Val His Pro Leu Thr Ala Phe Ala Tyr Gly Ser Ser Cys Lys Phe
            340                 345                 350
Glu Cys Gln Pro Gly Tyr Arg Val Arg Gly Leu Asp Met Leu Arg Cys
        355                 360                 365
Ile Asp Ser Gly His Trp Ser Ala Pro Leu Pro Thr Cys Glu Ala Ile
    370                 375                 380
Ser Cys Glu Pro Leu Glu Ser Pro Val His Gly Ser Met Asp Cys Ser
385                 390                 395                 400
Pro Ser Leu Arg Ala Phe Gln Tyr Asp Thr Asn Cys Ser Phe Arg Cys
                405                 410                 415
Ala Glu Gly Phe Met Leu Arg Gly Ala Asp Ile Val Arg Cys Asp Asn
            420                 425                 430
Leu Gly Gln Trp Thr Ala Pro Ala Pro Val Cys Gln Ala Leu Gln Cys
        435                 440                 445
Gln Asp Leu Pro Val Pro Asn Glu Ala Arg Val Asn Cys Ser His Pro
    450                 455                 460
Phe Gly Ala Phe Arg Tyr Gln Ser Val Cys Ser Phe Thr Cys Asn Glu
465                 470                 475                 480
Gly Leu Leu Leu Val Gly Ala Ser Val Leu Gln Cys Leu Ala Thr Gly
                485                 490                 495
Asn Trp Asn Ser Val Pro Pro Glu Cys Gln Ala Ile Pro Cys Thr Pro
            500                 505                 510
Leu Leu Ser Pro Gln Asn Gly Thr Met Thr Cys Val Gln Pro Leu Gly
        515                 520                 525
Ser Ser Ser Tyr Lys Ser Thr Cys Gln Phe Ile Cys Asp Glu Gly Tyr
    530                 535                 540
Ser Leu Ser Gly Pro Glu Arg Leu Asp Cys Thr Arg Ser Gly Arg Trp
545                 550                 555                 560
Thr Asp Ser Pro Pro Met Cys Glu Ala Ile Lys Cys Pro Glu Leu Phe
                565                 570                 575
Ala Pro Glu Gln Gly Ser Leu Asp Cys Ser Asp Thr Arg Gly Glu Phe
            580                 585                 590
Asn Val Gly Ser Thr Cys His Phe Ser Cys Asn Asn Gly Phe Lys Leu
        595                 600                 605
Glu Gly Pro Asn Asn Val Glu Cys Thr Thr Ser Gly Arg Trp Ser Ala
    610                 615                 620
Thr Pro Pro Thr Cys Lys Gly Ile Ala Ser Leu Pro Thr Pro Gly Leu
625                 630                 635                 640
Gln Cys Pro Ala Leu Thr Thr Pro Gly Gln Gly Thr Met Tyr Cys Arg
                645                 650                 655
His His Pro Gly Thr Phe Gly Phe Asn Thr Thr Cys Tyr Phe Gly Cys
            660                 665                 670
```

```
Asn Ala Gly Phe Thr Leu Ile Gly Asp Ser Thr Leu Ser Cys Arg Pro
        675                 680                 685
Ser Gly Gln Trp Thr Ala Val Thr Pro Ala Cys Arg Ala Val Lys Cys
    690                 695                 700
Ser Glu Leu His Val Asn Lys Pro Ile Ala Met Asn Cys Ser Asn Leu
705                 710                 715                 720
Trp Gly Asn Phe Ser Tyr Gly Ser Ile Cys Ser Phe His Cys Leu Glu
                725                 730                 735
Gly Gln Leu Leu Asn Gly Ser Ala Gln Thr Ala Cys Gln Glu Asn Gly
            740                 745                 750
His Trp Ser Thr Thr Val Pro Thr Cys Gln Ala Gly Pro Leu Thr Ile
        755                 760                 765
Gln Glu Ala Leu Thr Tyr Phe Gly Gly Ala Val Ala Ser Thr Ile Gly
    770                 775                 780
Leu Ile Met Gly Gly Thr Leu Leu Ala Leu Leu Arg Lys Arg Phe Arg
785                 790                 795                 800
Gln Lys Asp Asp Gly Lys Cys Pro Leu Asn Pro His Ser His Leu Gly
                805                 810                 815
Thr Tyr Gly Val Phe Thr Asn Ala Ala Phe Asp Pro Ser Pro
            820                 825                 830
```

<210> 2
<211> 610
<212> PRT
<213> Homo sapiens

<400> 2

```
Met Ile Ala Ser Gln Phe Leu Ser Ala Leu Thr Leu Val Leu Leu Ile
 1               5                  10                  15
Lys Glu Ser Gly Ala Trp Ser Tyr Asn Thr Ser Thr Glu Ala Met Thr
            20                  25                  30
Tyr Asp Glu Ala Ser Ala Tyr Cys Gln Gln Arg Tyr Thr His Leu Val
        35                  40                  45
Ala Ile Gln Asn Lys Glu Glu Ile Glu Tyr Leu Asn Ser Ile Leu Ser
    50                  55                  60
Tyr Ser Pro Ser Tyr Tyr Trp Ile Gly Ile Arg Lys Val Asn Asn Val
65                  70                  75                  80
Trp Val Trp Val Gly Thr Gln Lys Pro Leu Thr Glu Glu Ala Lys Asn
                85                  90                  95
Trp Ala Pro Gly Glu Pro Asn Asn Arg Gln Lys Asp Glu Asp Cys Val
            100                 105                 110
Glu Ile Tyr Ile Lys Arg Glu Lys Asp Val Gly Met Trp Asn Asp Glu
        115                 120                 125
Arg Cys Ser Lys Lys Lys Leu Ala Leu Cys Tyr Thr Ala Ala Cys Thr
    130                 135                 140
Asn Thr Ser Cys Ser Gly His Gly Glu Cys Val Glu Thr Ile Asn Asn
145                 150                 155                 160
Tyr Thr Cys Lys Cys Asp Pro Gly Phe Ser Gly Leu Lys Cys Glu Gln
                165                 170                 175
Ile Val Asn Cys Thr Ala Leu Glu Ser Pro Glu His Gly Ser Leu Val
            180                 185                 190
Cys Ser His Pro Leu Gly Asn Phe Ser Tyr Asn Ser Ser Cys Ser Ile
        195                 200                 205
Ser Cys Asp Arg Gly Tyr Leu Pro Ser Ser Met Glu Thr Met Gln Cys
    210                 215                 220
Met Ser Ser Gly Glu Trp Ser Ala Pro Ile Pro Ala Cys Asn Val Val
```

```
225                 230                 235                 240
Glu Cys Asp Ala Val Thr Asn Pro Ala Asn Gly Phe Val Glu Cys Phe
                245                 250                 255
Gln Asn Pro Gly Ser Phe Pro Trp Asn Thr Thr Cys Thr Phe Asp Cys
            260                 265                 270
Glu Glu Gly Phe Glu Leu Met Gly Ala Gln Ser Leu Gln Cys Thr Ser
        275                 280                 285
Ser Gly Asn Trp Asp Asn Glu Lys Pro Thr Cys Lys Ala Val Thr Cys
    290                 295                 300
Arg Ala Val Arg Gln Pro Gln Asn Gly Ser Val Arg Cys Ser His Ser
305                 310                 315                 320
Pro Ala Gly Glu Phe Thr Phe Lys Ser Ser Cys Asn Phe Thr Cys Glu
                325                 330                 335
Glu Gly Phe Met Leu Gln Gly Pro Ala Gln Val Glu Cys Thr Thr Gln
            340                 345                 350
Gly Gln Trp Thr Gln Gln Ile Pro Val Cys Glu Ala Phe Gln Cys Thr
        355                 360                 365
Ala Leu Ser Asn Pro Glu Arg Gly Tyr Met Asn Cys Leu Pro Ser Ala
    370                 375                 380
Ser Gly Ser Phe Arg Tyr Gly Ser Ser Cys Glu Phe Ser Cys Glu Gln
385                 390                 395                 400
Gly Phe Val Leu Lys Gly Ser Lys Arg Leu Gln Cys Gly Pro Thr Gly
                405                 410                 415
Glu Trp Asp Asn Glu Lys Pro Thr Cys Glu Ala Val Arg Cys Asp Ala
            420                 425                 430
Val His Gln Pro Pro Lys Gly Leu Val Arg Cys Ala His Ser Pro Ile
        435                 440                 445
Gly Glu Phe Thr Tyr Lys Ser Ser Cys Ala Phe Ser Cys Glu Glu Gly
    450                 455                 460
Phe Glu Leu Tyr Gly Ser Thr Gln Leu Glu Cys Thr Ser Gln Gly Gln
465                 470                 475                 480
Trp Thr Glu Glu Val Pro Ser Cys Gln Val Val Lys Cys Ser Ser Leu
                485                 490                 495
Ala Val Pro Gly Lys Ile Asn Met Ser Cys Ser Gly Glu Pro Val Phe
            500                 505                 510
Gly Thr Val Cys Lys Phe Ala Cys Pro Glu Gly Trp Thr Leu Asn Gly
        515                 520                 525
Ser Ala Ala Arg Thr Cys Gly Ala Thr Gly His Trp Ser Gly Leu Leu
    530                 535                 540
Pro Thr Cys Glu Ala Pro Thr Glu Ser Asn Ile Pro Leu Val Ala Gly
545                 550                 555                 560
Leu Ser Ala Ala Gly Leu Ser Leu Leu Thr Leu Ala Pro Phe Leu Leu
                565                 570                 575
Trp Leu Arg Lys Cys Leu Arg Lys Ala Lys Lys Phe Val Pro Ala Ser
            580                 585                 590
Ser Cys Gln Ser Leu Glu Ser Asp Gly Ser Tyr Gln Lys Pro Ser Tyr
        595                 600                 605
Ile Leu
    610
```

<210> 3
<211> 412
<212> PRT
<213> Homo sapiens

<400> 3

```
Met Pro Leu Gln Leu Leu Leu Leu Leu Ile Leu Leu Gly Pro Gly Asn
 1               5                  10                  15
Ser Leu Gln Leu Trp Asp Thr Trp Ala Asp Glu Ala Glu Lys Ala Leu
            20                  25                  30
Gly Pro Leu Leu Ala Arg Asp Arg Arg Gln Ala Thr Glu Tyr Glu Tyr
        35                  40                  45
Leu Asp Tyr Asp Phe Leu Pro Glu Thr Glu Pro Pro Glu Met Leu Arg
    50                  55                  60
Asn Ser Thr Asp Thr Thr Pro Leu Thr Gly Pro Gly Thr Pro Glu Ser
65                  70                  75                  80
Thr Thr Val Glu Pro Ala Ala Arg Arg Ser Thr Gly Leu Asp Ala Gly
                85                  90                  95
Gly Ala Val Thr Glu Leu Thr Thr Glu Leu Ala Asn Met Gly Asn Leu
            100                 105                 110
Ser Thr Asp Ser Ala Ala Met Glu Ile Gln Thr Thr Gln Pro Ala Ala
        115                 120                 125
Thr Glu Ala Gln Thr Thr Gln Pro Val Pro Thr Glu Ala Gln Thr Thr
    130                 135                 140
Pro Leu Ala Ala Thr Glu Ala Gln Thr Thr Arg Leu Thr Ala Thr Glu
145                 150                 155                 160
Ala Gln Thr Thr Pro Leu Ala Ala Thr Glu Ala Gln Thr Thr Pro Pro
                165                 170                 175
Ala Ala Thr Glu Ala Gln Thr Thr Gln Pro Thr Gly Leu Glu Ala Gln
            180                 185                 190
Thr Thr Ala Pro Ala Ala Met Glu Ala Gln Thr Thr Ala Pro Ala Ala
        195                 200                 205
Met Glu Ala Gln Thr Thr Pro Pro Ala Ala Met Glu Ala Gln Thr Thr
    210                 215                 220
Gln Thr Thr Ala Met Glu Ala Gln Thr Thr Ala Pro Glu Ala Thr Glu
225                 230                 235                 240
Ala Gln Thr Thr Gln Pro Thr Ala Thr Glu Ala Gln Thr Thr Pro Leu
                245                 250                 255
Ala Ala Met Glu Ala Leu Ser Thr Glu Pro Ser Ala Thr Glu Ala Leu
            260                 265                 270
Ser Met Glu Pro Thr Thr Lys Arg Gly Leu Phe Ile Pro Phe Ser Val
        275                 280                 285
Ser Ser Val Thr His Lys Gly Ile Pro Met Ala Ala Ser Asn Leu Ser
    290                 295                 300
Val Asn Tyr Pro Val Gly Ala Pro Asp His Ile Ser Val Lys Gln Cys
305                 310                 315                 320
Leu Leu Ala Ile Leu Ile Leu Ala Leu Val Ala Thr Ile Phe Phe Val
                325                 330                 335
Cys Thr Val Val Leu Ala Val Arg Leu Ser Arg Lys Gly His Met Tyr
            340                 345                 350
Pro Val Arg Asn Tyr Ser Pro Thr Glu Met Val Cys Ile Ser Ser Leu
        355                 360                 365
Leu Pro Asp Gly Gly Glu Gly Pro Ser Ala Thr Ala Asn Gly Gly Leu
    370                 375                 380
Ser Lys Ala Lys Ser Pro Gly Leu Thr Pro Glu Pro Arg Glu Asp Arg
385                 390                 395                 400
Glu Gly Asp Asp Leu Thr Leu His Ser Phe Leu Pro
                405                 410
```

<210> 4
<211> 5
<212> PRT

<213> Homo sapiens

<400> 4
Asp Asp Asp Asp Lys
1 5

<210> 5
<211> 28
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetically generated peptide

<400> 5
Gln Ala Thr Glu Tyr Glu Tyr Leu Asp Tyr Asp Phe Leu Pro Glu Thr
1 5 10 15
Glu Pro Pro Arg Pro Met Met Asp Asp Asp Asp Lys
20 25

<210> 6
<211> 160
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetically generated peptide

<400> 6
Trp Thr Tyr His Tyr Ser Thr Lys Ala Tyr Ser Trp Asn Ile Ser Arg
1 5 10 15
Ala Tyr Cys Gln Asn Arg Tyr Thr Asp Leu Val Ala Ile Gln Asn Lys
20 25 30
Asn Glu Ile Asp Tyr Leu Asn Lys Val Leu Pro Tyr Tyr Ser Ser Tyr
35 40 45
Tyr Trp Ile Gly Ile Arg Lys Asn Asn Lys Thr Trp Thr Trp Val Gly
50 55 60
Thr Lys Lys Ala Leu Thr Asn Glu Ala Glu Asn Trp Ala Asp Asn Glu
65 70 75 80
Pro Asn Asn Lys Arg Asn Asn Glu Asp Cys Val Glu Ile Tyr Ile Lys
85 90 95
Ser Pro Ser Ala Pro Gly Lys Trp Asn Asp Glu His Cys Leu Lys Lys
100 105 110
Lys His Ala Leu Cys Tyr Thr Ala Ser Cys Gln Asp Met Ser Cys Ser
115 120 125
Lys Gln Gly Glu Cys Leu Glu Thr Ile Gly Asn Tyr Thr Cys Ser Cys
130 135 140
Tyr Pro Gly Phe Tyr Gly Pro Glu Cys Glu Tyr Val Arg Asp Ala Ala
145 150 155 160

<210> 7
<211> 157
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetically generated peptide

<400> 7
Trp Ser Tyr Asn Thr Ser Thr Glu Ala Met Thr Tyr Asp Glu Ala Ser
1 5 10 15
Ala Tyr Cys Gln Gln Arg Tyr Thr His Leu Val Ala Ile Gln Asn Lys
20 25 30
Glu Glu Ile Glu Tyr Leu Asn Ser Ile Leu Ser Tyr Ser Pro Ser Tyr
35 40 45
Tyr Trp Ile Gly Ile Arg Lys Val Asn Asn Val Trp Val Trp Val Gly
50 55 60
Thr Gln Lys Pro Leu Thr Glu Glu Ala Lys Asn Trp Ala Pro Gly Glu
65 70 75 80
Pro Asn Asn Arg Gln Lys Asp Glu Asp Cys Val Glu Ile Tyr Ile Lys
85 90 95
Arg Glu Lys Asp Val Gly Met Trp Asn Asp Glu Arg Cys Ser Lys Lys
100 105 110
Lys Leu Ala Leu Cys Tyr Thr Ala Ala Cys Thr Asn Thr Ser Cys Ser
115 120 125
Gly His Gly Glu Cys Val Glu Thr Ile Asn Asn Tyr Thr Cys Lys Cys
130 135 140
Asp Pro Gly Phe Ser Gly Leu Lys Cys Glu Gln Ile Val
145 150 155

<210> 8
<211> 158
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetically generated peptide

<400> 8
Trp Thr Tyr His Tyr Ser Thr Lys Ala Tyr Ser Trp Asn Ile Ser Arg
1 5 10 15
Ala Tyr Cys Gln Asn Arg Tyr Thr Asp Leu Val Ala Ile Gln Asn Lys
20 25 30
Asn Glu Ile Asp Tyr Leu Asn Lys Val Leu Pro Tyr Tyr Ser Ser Tyr
35 40 45
Tyr Trp Ile Gly Ile Arg Lys Asn Asn Lys Thr Trp Thr Trp Val Gly
50 55 60
Thr Lys Lys Ala Leu Thr Asn Glu Ala Glu Asn Trp Ala Asp Asn Glu
65 70 75 80
Pro Asn Asn Lys Arg Asn Asn Glu Asp Cys Val Glu Ile Tyr Ile Lys
85 90 95
Ser Pro Ser Ala Pro Gly Lys Trp Asn Asp Glu His Cys Leu Lys Lys
100 105 110
Lys His Ala Leu Cys Tyr Thr Ala Ser Cys Gln Asp Met Ser Cys Ser
115 120 125
Lys Gln Gly Glu Cys Leu Glu Thr Ile Gly Asn Tyr Thr Cys Ser Cys
130 135 140
Tyr Pro Gly Phe Tyr Gly Pro Glu Cys Glu Tyr Val Arg Glu
145 150 155

<210> 9
<211> 157
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetically generated peptide

<400> 9
Trp Thr Tyr His Tyr Ser Thr Lys Ala Tyr Ser Trp Asn Ile Ser Arg
1 5 10 15
Ala Tyr Cys Gln Asn Arg Tyr Thr Asp Leu Val Ala Ile Gln Asn Lys
20 25 30
Asn Glu Ile Asp Tyr Leu Asn Lys Val Leu Pro Tyr Tyr Ser Ser Tyr
35 40 45
Tyr Trp Ile Gly Ile Arg Lys Asn Asn Lys Thr Trp Thr Trp Val Gly
50 55 60
Thr Lys Lys Ala Leu Thr Asn Glu Ala Glu Asn Trp Ala Asp Asn Glu
65 70 75 80
Pro Asn Asn Lys Arg Asn Asn Glu Asp Cys Val Glu Ile Tyr Ile Lys
85 90 95
Ser Pro Ser Ala Pro Gly Lys Trp Asn Asp Glu His Cys Leu Lys Lys
100 105 110
Lys His Ala Leu Cys Tyr Thr Ala Ser Cys Gln Asp Met Ser Cys Ser
115 120 125
Lys Gln Gly Glu Cys Leu Glu Thr Ile Gly Asn Tyr Thr Cys Ser Cys
130 135 140
Tyr Pro Gly Phe Tyr Gly Pro Glu Cys Glu Tyr Val Ala
145 150 155

<210> 10
<211> 13
<212> PRT
<213> Artificial sequence

<220>
<223> Synthetically generated peptide

<220>
<221> VARIANT
<222> 2, 5
<223> Xaa = sulfated Tyr

<400> 10
Ala Xaa Leu Asp Xaa Asp Phe Leu Pro Glu Thr Glu Pro
1 5 10